In the Supreme Court of the United States

OCTOBER TERM, 1961.

No. 316.

ALUMINUM COMPANY OF AMERICA,
ELECTRO-CIRCUITS, INC., and
CURTISS-WRIGHT CORPORATION,

Petitioners,

vs.

SPERRY PRODUCTS, INC.,
FLOYD A. FIRESTONE, and
UNITED AIRCRAFT CORPORATION,

Respondents.

BRIEF FOR RESPONDENT, FLOYD A. FIRESTONE, IN OPPOSITION TO PETITION.

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TABLE OF CONTENTS.

Counterstatement of Questions Presented for Review 1

Counterstatement of the Facts 3

Re: The Patents In Suit 3

Re: The Relationship Between Electro-Circuits and Sperry 3

Argument 4

Reasons for Disallowance of the Writ 4

As to the First Question 4

Summary as to the First Question 10

As to Petitioner's Second Question Part 2(a) 11

As to Petitioner's Question 2(b) 17

As to Petitioner's Question 2(c) 20

Conclusion 21

Appendix. Opinion of the United States Court of Appeals for the Sixth Circuit 1b

TABLE OF AUTHORITIES.

Cases.

Comptograph Co. v. Mechanical Accountant Co., 145 F. 331 (1st Cir.—1906) 17, 18

General Motors Corp. v. Estate Stove Co., 201 F2d. 645 (6th Cir.—1953), rehearing 203 F2d. 912 12, 13

Haliburton Oil Well Cementing Co. v. Walker, 329 U. S. 1 (1946) 11, 13, 14, 15, 21

Krodel case, 223 F2d. 285 (CCPA—1955) 14

Mason, Application of, 244 F2d. 733 (CCPA—1957) 13

Piazze, Application of, 230 F2d. 426 (CCPA—1956) 13

Warren Company v. Nashua Gummed & Coated Paper Co., 205 F2d. 602 (1st Cir.—1953) 14

Texts.

Amdur's "Patent Office Rules and Practice" (1959), page 205 15

Statutes.

Patent Act of 1952, Section 112 ..... 11, 12, 13, 14, 15, 16, 17, 20, 21

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COUNTERSTATEMENT OF QUESTIONS PRESENTED FOR REVIEW.

Counter Question 1 (a) and (b).

a. Is a proper tying-in question presented for review where a licensee is given a license to make an otherwise infringing attachment for a device, but the licensor reserves the right to make the main portion covered by the patent and where there is no tying-in of unpatented articles?

b. Where two lower Courts went into the "surrounding circumstances" at great length and found that:

(1) The Licensor demonstrated good faith and public concern by turning down the licensee's proposal to tie-in unpatented products;

(2) There was no domination of an industry; and

(3) The Licensor made a good faith effort to put the device on the market in all fields where it would be of use —either by manufacturing it itself, or granting licenses thereunder; then:

Do the "surrounding circumstances" indicate a need for certiorari to right a wrong, or do they show instead an attempt by Respondent to do even more than the law requires in order that the benefits of the patent may be utilized to their fullest?

Counter Question 2(a).

Where an Appellate Court follows the express wording of a statute, and wherein the meaning of the statute has caused no confusion in the courts, should certiorari be granted to determine a question which was *obiter dictum* in the case at bar and which would not change the ruling in this case whether this Court held for or against Petitioner's position as to the *obiter dictum*?

Counter Question 2(b).

May review be sought to construe a statute section which has nothing to do with the question propounded, or to determine whether there was error in the Appellate Court's reliance on a case which does not stand for the proposition asserted by Petitioner as being erroneous?

COUNTERSTATEMENT OF THE FACTS.

Re: The Patents In Suit.

Petitioner's main contention is that the patents are anticipated by the prior art. This contention is contrary to the express findings of the District Court (784a-794a, 801a-802a) and Appellate Court. (Appendix hereto 8b-11b and 16b-19b.) As will be more apparent in discussing Petitioner's Questions, Petitioner's real intention is to reargue these findings of anticipation rather than to propound questions of law raised by this case or of interest to the bench and bar.

Re: The Relationship between Electro-Circuits and Sperry.

Petitioner's statements of "fact" are quite different from the relationship of the parties as found by the District (812a-819a; 825a-829a) and Appellate Courts. (Appendix hereto 28b-30b.)

The facts show *inter alia* that it was Electro-Circuits which proposed a tying-in agreement and that the proposition was rejected. (826a.) The facts show that the device made by Electro-Circuits was an infringing auxilliary attachment adapted to be "plugged into" the Sperry device. (826a.) The facts show that there was no domination of the industry. (814a, 819a.) Sperry did much more than a patent owner is required by law to do. Sperry, in good faith, did its utmost to put a device on the market in all the areas in which it would be of use.

ARGUMENT.

Reasons For Disallowance Of The Writ.

Respondent respectfully submits that the Petition does not raise questions supported by the case. Petitioner's First Question attempts to give the impression that there was a tie-in of unpatented articles, which there was not. Petitioner also singles out certain "surrounding circumstances" taken out of context and conveniently omits the "surrounding circumstances" which were found by the District and Appellate Courts and which indicate Respondent's attempt to do even more than the law requires.

Petitioner's second question, part (a), asks this Court to consider an *obiter dictum* statement of the Appellate Court and the application of a statute which has not caused trouble in the Courts since its enactment.

Petitioner's second question, part (b), asks this Court to construe a statutory section which has nothing to do with the question propounded, and to exercise supervisory authority over the Appellate Court for alleged error in relying on a case which does not stand for the point of law which Petitioner says it does, and which was not relied on by the Appellate Court for the reason asserted by Petitioner. Petitioner's Questions are not supported by the case. Certiorari should be denied.

As to the First Question.

Petitioner's entire first question is based upon an alleged tying-in provision in a license agreement wherein purchasers were allegedly required to purchase an unpatented product. Let there be no doubt that such a tying-in provision did *not* exist.

The actual agreement, which is purportedly the cause of the entire First Question, is only casually explained

in only one sentence of one paragraph beginning on page 16 of the Argument—almost as though Petitioner were trying to gloss over lightly the actual terms thereof.

The facts of the relationship between the companies and the terms of the agreement are set forth in the opinion of the District Court. The following facts are significant:

1. Sperry was approached by Electro-Circuits and was asked to grant a license including an agreement to purchase unpatented sub-assemblies. This offer of Electro-Circuits, which would have been illegal, was *refused* by Sperry. (826a.)

2. Sperry did agree to license Electro-Circuits to make and sell its Wide Band Converter but only in conjunction with the patented Reflectoscope. Note that the infringement question was so obvious that Electro-Circuits approached Sperry. (773a.) Sperry could have elected not to license at all.

The invention of Dr. Firestone which is summarized by the District Court (772a) has three basic components—a particular pulse generating apparatus, a pulse-echo receiving mechanism, and a synchronizing and flaw registering apparatus. The Wide Band Converter performed the generating and receiving functions. If "plugged into" (826a) a Reflectoscope it permitted operation at higher frequencies (773a). It was, in essence, an attachment which, if made and sold, would have been an infringement. Sperry consented to the manufacture of the attachment by Electro-Circuits, but only for attachment to patented Reflectoscopes. As stated by the Appellate Court, (Appendix hereto 29b):

> "At this point, the parties to the agreement assumed that the Wide Band Converter infringed the Sperry patents. This being so, Sperry could have prevented the sale of the converters or could have

> sued the users for infringement. Sperry was legally entitled to be free of competition in the use of its patents. Under the agreement, no trade was unlawfully restrained. An article was thus introduced into commerce that might otherwise have been withheld from the markets."

Note that the Reflectoscope was "80% useless" only temporarily when the attachment for higher frequency was "plugged in"—in much the same way that a large portion of a T-V set is temporarily "useless" when a phonograph turntable is "plugged in" to play through the speaker system of the T-V set. The important factor is that there was no tying-in. The entire arrangement was covered by at least one patent. There was no tying-in of devices or articles not covered by the patents, no price-fixing, or any other harm referred to in the cases cited by Petitioner. It is no wonder that Petitioner tried to gloss over the actual terms of the agreement, and to overlook the fact that Petitioner had proposed an agreement whereby Sperry was to sell unpatented assemblies and which was turned down by Sperry (828a). Petitioner's First Question, being premised on an agreement that, as a matter of fact, does not involve a tie-in of an unpatented device, should be denied certiorari.

Petitioner makes much of the "surrounding circumstances" of the agreement. Let us look at *all* the surrounding circumstances. Petitioner neglects to note the following:

(1) The agreement in question lasted only nine months during which time eight units were sold as attachments to customers *who already owned patented Sperry Reflectoscopes* (826a) and only one to a customer who purchased a new patented Sperry Reflectoscope. With respect to the single sale, the Trial Court noted that

> "In that case Sperry imposed no condition upon the use of its instrument but merely agreed that in addition to its use in the usual manner the purchaser might also use the Reflectoscope in conjunction with the Wide Band Converter."

(2) Sperry exercised no discrimination or holding back. As stated by the Appellate Court (Appendix hereto 30b):

> "The evidence discloses that the Reflectoscope which is the subject of the patents in suit was sold outright *without restriction*. Approximately eleven hundred were so sold." (Emphasis added.)

(3) The only area where Sperry would not license *competitors* is in the commercial testing business. About 150 companies are engaged therein and Sperry does only 1% of the business (814a, 819a). There is clearly no domination or restraint of trade.

(4) Moreover, when Electro-Circuits breached the agreement, Sperry permitted Electro-Circuits to sell its infringing devices until Electro-Circuits could convert over to an F-M system on which Electro-Circuits held a patent and on which Electro-Circuits would operate completely free of infringement of the patents in suit with no tie-in of any kind (827a). Instead of converting to F-M, Electro-Circuits, after the six month period:

> "incorporated a cathode ray oscilloscope in its wide band converter and called the new self-operating unit an Immerscope." (827a.)

Note that Petitioner represented to the State of California in its prospectus, that the frequency modulation method was superior to the pulse-echo method and that the successful development of the frequency modulation method has been "conclusively established." (1216b.)

(5) Note that the District Court held (773a) that:

> "The wide band converter was used primarily for detecting flaws in parts by placing the parts to be inspected underwater."

Thus, if, as Petitioner maintains, its device was better adapted for testing aircraft forgings, Sperry licensed Petitioner to do so.

(6) However, contrary to Petitioner's assertion, Sperry did provide immersion testing equipment and did attempt to meet the need of the airframe manufacturers—both by its own efforts and by licensing Electro-Circuits to make a temporary conversion system to be "plugged in" until a more complete device could be developed. Petitioner did not develop "immersed testing." The Sperry Reflectoscope was used for immersed testing before the Immerscope was ever made and even prior to the "wide-band converter" which was the predecessor of the Immerscope (Hitt, 481a, 447a, 449a-451a; Richards, 664a-665a). This early Reflectoscope when used for immersed testing had certain limitations, the principal one of which was that it did not have a high enough frequency range to detect flaws as small and as close to the surface as was desired. In 1951 when made aware of this desire on the part of the air frame manufacturers, Sperry modified its UR Reflectoscope by adding a delayed sweep and increasing the frequency (449a). In use it developed that this also had limitations among which were a lack of power and a need for even higher frequencies (Hitt, 455a, 456a). Sperry agreed with the representatives of Alcoa and the air frame manufacturers to design an equipment which would meet the variety of demands and requirements of different companies (Fink, 235b; Hood, 172b). The Sperry Reflectoscopes of the older UR series are today used for immersion testing by the Aluminum Company at low

frequencies (Hood, 167b). The problem did not reside in using the early model UR for immersed testing as Petitioner implies. The problem resided in providing higher frequencies in testing flaws closer to the surface, which was the particular requirement of the air frame companies (Manning, 286b, 287b). In the meantime, Electro-Circuits undertook to provide a wide-band converter to convert the existing Reflectoscopes so that the air frame manufacturers could have the high frequencies and other features which they particularly wanted (Hitt, 449a, 451a). Sperry granted Electro-Circuits a license so that the need could be met while Sperry perfected an entire unit. That license is the license in question.

(7) With respect to the production line, Petitioner's witness, Hitt, of Douglas Aircraft, testified that the Sperry instrument was not as good for production line testing "as we use production ultrasonic testing" (453a). In other words, they had a preference because of the particular way they do things. Hitt admitted that it is a "very fine instrument" but is complex and heavy (453a). In other words they preferred the lighter and simpler and less expensive construction. Petitioner is dealing with a preference not public safety.

According to the testimony of Petitioner's own witnesses on cross-examination the demand varied. William L. Fink, Chief of the Physical Metallurgy Division of the Alcoa Research Laboratories, stated as follows at page 235b:

> "You see, each customer had his ideas of what this instrument should do, so that the UW (Respondent's) instrument is largely to meet the demands or the requests of quite a number of customers."

Likewise, Petitioner's witness, John Smack, manager of Ultrasonic Sales for Curtiss-Wright Corporation (620a) stated (246b):

> "We like both instruments, and we use them where we feel they are best fitted. In other words, if the UW is too large for a certain installation, then we may go to the immerscope because it is a *smaller unit and weighs much less.*" (Emphasis added.)

The difference again is a difference of size and weight, not quality. Sperry's U. W. had more features than any one company would want. (Buckman 181b.)

(8) Respondent's patent was a pioneer invention (791a) having many applications and uses. Respondent's licensee, Sperry, attempted to apply it as rapidly as possible to all fields, either by direct manufacture or licensing; the public was not deprived of the use of the invention. Because the infringer adapted the device to perform just one particular and specialized use, rather than having an all purpose unit, the infringer is not entitled to say that Respondent acted improperly—particularly where the infringer was granted a license to fill the need in the interim period.

Summary As To The First Question.

The record shows that Petitioner's assertion of a tie-in of an unpatented product is unfounded. Petitioner itself sought an illegal agreement and was refused. Respondent, Sperry, sold its devices without restriction and attempted in good faith to market the device in all areas of demand even though under the law it did not need to do so. There is no misuse. Petitioner is merely trying to reargue its case. The petition based on Petitioner's First Question should be denied.

As To Petitioner's Second Question Part (2a).

Where an Appellate Court follows the express wording of a statute, and wherein the meaning of the statute has caused no confusion in the courts, should certiorari be granted to determine a question which was *obiter dictum* in the case at bar and which would not change the ruling in this case whether this Court held for or against Petitioner's position as to the *obiter dictum*?

Petitioner is asking this Court to determine whether Section 112 overrules the *Haliburton* case where the matter is immaterial to a decision of this case and has not caused any problems in the Courts since its enactment in 1952.

The Appellate Court herein followed the express wording of Section 112 of the Patent Act of 1952. Whether this section abolishes or merely modifies the *Haliburton** case is immaterial to the outcome of this case. To hold otherwise would be to hold that a prior case overrules a subsequent statute. Any discussion of a previous case construing a different statutory provision, while interesting, is nevertheless *obiter dictum*. If, as Petitioner asserts, the status of the *Haliburton* case is important, this is certainly not the case in which to raise it, as the Appellate Court followed the statute expressly. The reference to the *Haliburton* case was *obiter dictum*, and under the "case or controversy" provision of the Constitution would not place the issue squarely before the Court, or assist in determining the extent of modification. Whether this Court holds that the *Haliburton* case is abolished, merely modified, or distinguished, the outcome would be the same—a decision in favor of Respondent. Petitioner does not challenge the Constitutionality of Section 112, nor does Peti-

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* *Haliburton Oil Well Cementing Co. v. Walker*, 329 U. S. 1 (1946).

tioner assert that the Appellate Court did not follow the statute. The former grounds would be pointless and the latter is clearly contrary to the facts.

The claims in suit involved combination claims which included "means" clauses. Section 112 of the Patent Act provides that in a combination claim:

> "An element may be expressed as a means * * * for performing a specified function, without the recital of structure * * * in support thereof, and such claim shall be construed to cover the corresponding structure * * * described in the specification and equivalents thereof."

The Appellate Court looked to the claims in the light of the specification and held (Appendix hereto, 7b):

> "We consider that the elements of the combination constituting the claimed invention are sufficiently defined and described in the specifications to support the claims in suit as stated."

Petitioner's second grounds for review involved an alleged conflict among the courts which, in fact, does not exist.

In doing so Petitioner has pitted the First and Sixth Circuits and the Court of Customs and Patent Appeals against each other in a battle that does not exist. The question has not disturbed the Courts and the holdings of the Courts have been entirely consistent with the ruling of the Appellate Court in the case at bar.

The ruling of the Sixth Circuit in *General Motors Corp. v. Estate Stove Co.*, 201 F2d. 645 (6th Cir.—1953), rehearing 203 F2d. 912, is not in point. The Court did not, as Petitioner asserts, hold that "claims directed to a function were invalid." The Court held that the claims were invalid because they were "indefinite" in specifying heat-

ing capacities as being "greater" or "smaller." That is quite a difference. Indefiniteness is set forth in the first two paragraphs of Section 112. The Court in the *General Motors* case quoted those first two paragraphs in reaching its conclusion and rejected the relevancy of paragraph 3 of Section 112 which pertains to functional claims which was put forth by the Appellee therein. In the case at bar we are concerned with the third paragraph of Section 112. Note that the *General Motors* case does not cite the *Haliburton* case.

Nor is there conflict with rulings of the Court of Customs and Patent Appeals. In *Application of Piazze*, 230 F2d. 426 (CCPA—1956) and *Application of Mason*, 244 F2d. 733 (CCPA—1957) the question was whether claims were allowable wherein they *differed from the prior art* only in a statement of function. Note that neither Section 112 of the Patent Act nor the *Haliburton* case were at issue.

The Court in the *Piazze* case stated as follows at page 427:

> "It is well settled that claims drawn to structure must *distinguish from the prior art* in terms of structure rather than function * * * Accordingly, the question to be determined here is whether the structural feature recited in the claims are disclosed or suggested by the cited prior patents." (Emphasis added.)

This is an entirely separate question A claim is not patentable over the prior art by a functional statement any more than it would be if it provided an equivalent structure. We are concerned here, in Petitioner's Question 2(a) with whether means claims are valid where there is support therefor in the specification. Question 2(a) has nothing to do with prior art.

In the *Krodel* case, 223 F2d. 285 (CCPA—1955) the Court held the claims to be valid even though functional language was used therein. The *Krodel* Court reached this conclusion by looking to the specification to see if it supported the claims. The *Krodel* case followed the procedure of the statute as did the Appellate Court herein. In the *Krodel* case the Court used the words "functional" as synonymous with invalidity but in determining "functionality" it followed the statute, not the *Haliburton* case. In fact, the *Haliburton* case is not even mentioned.

Nor is the Sixth Circuit opinion below in conflict with the opinion of the Court of Appeals for the First Circuit in *Warren Company v. Nashua Gummed & Coated Paper Co.*, 205 F2d. 602 (1st Cir.—1953). In that case the Court, as did the Appellate Court herein, followed the guidance of paragraph 3 of Section 112 and looked to the specification to determine the validity of functional statements in the claims. The Court then affirmed the lower Court's holding of validity, stating at page 606 as follows:

> "* * * Reading the claims in the light of the specification, we think one skilled in the art could readily apprehend the precise nature of Perry's invention and the limits of its scope. This is all the law requires."

There is no conflict between the circuits, and the Courts have readily followed the statute.

With respect to the "facts" set forth at pages 24-26 of its Brief, Petitioner has set up a patchwork construction of unrelated and misleading elements in opposition to the clear findings of the Court. Not only is this patchwork erroneous but it is directed to an entirely different question from that propounded by Question 2(a).

Petitioner ignores the fact that the Appellate Court applied the test of Paragraph 3 of Section 112 by comparing the claims to the specification and found the claims to be supported by the specification. Instead Petitioner launches into an argument that the "functional" statements are invalid because they do not distinguish over the prior art. This is not the question asked by Question 2(a) and paraphrased in the bold type at the top of page 24 with respect to claims being "Invalid Because Directed To a Desired Result." This has nothing to do with the *Haliburton* case which Petitioner asserts is so important.

In passing, Respondent would like to point out that in addition to being irrelevant, Petitioner's statements are incorrect. The Preamble establishes the art with which the invention is concerned. The *elements* set forth the invention.

As stated by *Amdur's "Patent Office Rules and Practice"* (1959) at page 205:

> "The identifying preamble may be looked to, not as an element of the invention but only as the title or name of same, and the invention must be found in the combination of those of the elements actually entering into the device. The identifying preamble not being an element, it forms no basis of rejection on an alleged old combination."

Yet Petitioner puts the preamble forth as though it were an element. Petitioner states that the prior art was distinguished "only" because of the introductory clause. This statement is reckless. The Trial Court thoroughly discussed the prior art (785a-792a, 802a). Note in particular the detailed comparison, element for element, of the Sokolov reference (787a-789a). The Trial Court's findings were held to be proper by the Appellate Court (Appendix hereto page 11b).

The Smith reference referred to by Petitioner at Page 24 was compared to the elements *not* to the preamble by the Trial Court (790a) which concluded that:

> "* * * like other prior art cited by Defendants, Smith does not disclose the purpose, means and *mechanism* for accomplishing the end of the patent in suit." (Emphasis added.)

The reference to Dr. Firestone's statement in prosecution of the application is doubly improper. First, because the Claims 2 and 3 to which the argument was made were cancelled. They are not even part of the record herein. Secondly, the statement is taken out of context. The next sentence (923a) explains what Dr. Firestone meant by the statement. Dr. Firestone meant both the recognition that short wave trains can be produced to make it possible to inspect less than ten feet *and* a threefold method for doing the same. The threefold method is set forth earlier in the file wrapper (918a-922a) and incorporated by reference. The three-fold method relates to novel *elements* of the claims not just the preamble.

It is apparent that Petitioner is not really concerned with functional claims, as expressed Paragraph 3 of Section 112 of the Patent Act of 1952. What Petitioner is really seeking is that this Court reconsider the fact question of anticipation by the prior art.

Note the number of recurrence of the words "novel," "novelty" and "prior art" at Pages 24 and 25 of Petitioner's Brief. A claim is "functional" or not, in terms of its wording, as interpreted by the specification. If a claim is anticipated by the prior art it may lack novelty, but it is not therefore "functional."

Petitioner poses one question of law relating to an *obiter dictum* reference of the Appellate Court but then reargues instead a question of fact. Petitioner's Question 2(a) should be denied.

As to Petitioner's Question 2(b).

Question 2(b) asks whether Section 112 of the Patent Act has modified the rule that infringement does not exist where an alleged infringer follows the prior art. This is a surprising question as Section 112 has nothing to do with the relationship between the prior art and infringement. Is Petitioner merely using question 2(b) as a pretext to reconsider findings of fact as it did in question 2(a)?

Petitioner attempts to show a conflict among the courts in construing Section 112 on the question of infringement. This is indeed a novel position as none of the cases cited construe Section 112.

Petitioner asserts error and a conflict because the Appellate Court quoted from the *Comptograph Co. v. Mechanical Accountant Co.*, 145 F. 331, 338 (1st Cir.—1906). This is erroneous as the quotation from the *Comptograph* case has nothing to do with an infringer following the prior art instead of the patent. The meaning of the quotation is clear from the entire paragraph. The *Comptograph* Court states at page 337 as follows:

> "The defendant further contends that its disengaging levers were originally introduced into its machine for another purpose. We are strongly inclined to the opinion, however, that, whatever may have been the defendant's original purpose, the main purpose for which these levers are now employed is the same as the Felt levers, to prevent the error of 1 in additive substraction. But, assuming that the defendant's levers were originally inserted for another purpose, and in fact perform some other function, these circumstances, under the state of facts presented in this case, will not relieve the defendant from the charge of infringement. If the infringing device performs the same function as the patented device, it is immaterial that it also performs some other function. It is still none the less an equivalent of the patented

device, and an appropriation of the patented invention."

The *Comptograph* case has nothing to do with infringement where the prior art is followed. The question is merely a corollary to the principle cited by the Appellate Court (23a) immediately preceding its reference to the *Comptograph* case that

> "It is well established that an improver cannot appropriate the basic patent of another and that the improver without a license is an infringer and may be sued as such."

The District Court discussed the prior art at length with respect to the question of validity. The trial court then clearly compared the infringing device to the prior art and stated at page 804a:

> "As stated at the outset of this opinion, Defendant's principal defense against the charge of infringement is that the Immerscope follows the teachings of the prior art rather than the disclosures of the Firestone patents. In view of determinations here and above made on the issue of anticipation, no further comment is necessary to demonstrate the inadequacy of that defense."

The trial Court did compare but did not deem it necessary to repeat the similar arguments. Note, however, that the Court did go into detail at page 806a as follows:

> "Defendants argue that the Immerscope uses the echo system of depth sounding devices such as those shown by Stocks and Rust publication. They contend that any doubt as to the equivalence between a metal part and the mud and clay at the bottom of the ocean should be resolved favorably to the defendants by combining Stocks and Rust with the teachings of Sokolov. However, the only immersion testing taught by Sokolov is continuous testing which differs

> substantially from the methods of contact and the immersion testing taught by Firestone and used in the Immerscope * * *."

Note that at page 41 of its Appeal Brief Petitioner states:

> "Stocks and Rust teach the underwater inspection of underwater layers of clay by pulse echo equipment. This is immersion testing."

At page 28 of its Petition similar assertions are made including reference to Sokolov which was discussed by the District Court (806a). Yet Petitioner as a fact asserts at page 26 that it follows the prior art immersion testing method. It is clear that Petitioner is challenging the lower court's findings of fact, not law.

The question of comparison was put before the Appellate Court. Petitioner errs in implying at page 27 of its Brief that the Appellate Court based its holdings solely on an "admission," in a brief. Note, however, that the Appellate Court was affirming, not reversing, the lower Court's findings and as such was able to adopt the district Court's findings as long as they were not clearly erroneous. The Appellate Court was satisfied that Petitioner's device did not follow the prior art. As for the "admission," it is an unequivocal one. Petitioner stated at page 41 of its Appeal Brief that

> "Nevertheless, the claims of the No. 3 patent are so broad as to read literally on immersion testing."

Petitioner attempts to belittle the admission by stating at page 28 of its Brief:

> "We then went on to point out that the claims are completely anticipated by the Stocks and Rust * * *."

In other words, having admitted infringement they "went on" to challenge validity.

The Goetz reference is dismissed by the District Court at pages 802a and 803a.

Petitioner's Question 2(b) does not raise the question of whether Section 112 has changed the law that infringement does not exist where the prior art is followed. Petitioner is using the Statute as an apparent means to reconsider factual holdings with respect to anticipation.

As to Petitioner's Question 2(c).

Petitioner's Question 2(c) is completely without merit and without support in argument. No section is devoted to this question. Petitioner is asking the Court to consider a hypothetical question. Is the Court to consider the entire Patent Act and then give a commentary thereon? There is no case or controversy in this question.

CONCLUSION.

Petitioner has set up a series of straw-man questions. As an initial eye-catcher Petitioner tried to give the impression that there was a tie-in of an unpatented product (First Question) and harm to the public, contrary to the record. Petitioner then set up question 2(a) purportedly to construe an *obiter dictum* reference of the Appellate Court as to the academic question of the degree to which Section 112 modifies the *Haliburton* case, and used the question instead as a springboard to launch into a discussion of the prior art. Petitioner continued its discussion of the prior art in Question 2(b) which was purportedly to construe Section 112 of the Patent Act of 1952. Petitioner ignored the fact that Section 112 has nothing to do with prior art.

It is respectfully requested that the Petition be denied.

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APPENDIX.

OPINION OF THE UNITED STATES COURT OF APPEALS FOR THE SIXTH CIRCUIT.

(Decided November 22, 1960.)

Before: McALLISTER, Chief Judge, MILLER and CECIL, Circuit Judges.

CECIL, Circuit Judge. This is an appeal from the District Court of the Eastern Division of the Northern District of Ohio. It involves infringement and validity of patents and a claim for damages and restraining orders asserted by counterclaim, for alleged misuse of patents through acts, contracts, combinations, conspiracies and monopolies all as set forth in the pleadings. The questions presented will be taken up and discussed seriatim.

There are four patents in suit: Nos. 2,280,226, 2,398,-701, 2,467,301 and 2,592,134. For convenience, they are referred to as patent numbers 1, 2, 3 and 4, respectively. The dates of the applications for and the issuance of these patents are as follows:

	Application	*Issued*
No. 1	May 27, 1940	April 21, 1942
No. 2	June 29, 1942	April 16, 1946
No. 3	July 23, 1945	April 12, 1949
No. 4	June 28, 1945	April 8, 1952

The plaintiffs and appellees are the following: Floyd A. Firestone, the inventor of all four patents and the owner of the legal title to No. 1; Sperry Products, Inc., a New York corporation, the exclusive licensee under patents Nos. 1 and 2, and the owner of patents 3 and 4; and United Aircraft Corporation, a Delaware corporation, and the owner of patent No. 2. This latter party was brought into the action involuntarily.

Aluminum Company of America, a Pennsylvania corporation, hereinafter called "Alcoa" is one of the defendants. It has a place of business in Cleveland, Ohio, where it used the accused device known as the "Immerscope." Electro Circuits, Inc., a California corporation, is another defendant and is the manufacturer of the Immerscope. Having no place of business in the jurisdiction of the court, it became a party by voluntarily filing an answer and counterclaim. Curtiss-Wright Corporation, a Delaware corporation, became a defendant on its own motion for intervention under order of the court dated February 10, 1959. Subsequent to October 17, 1955, it had manufactured certain Immrscopes under license from Electro Circuits. It is financing this litigation due to the inability of Electro Circuits to do so. All of these defendants are appellants on this appeal.

The parties will be referred to as plaintiffs and defendants, as they were in the trial court.

We will take up first the question of the validity of patent No. 1. (px 1, 849a.)

The claimed invention involves the principles of electronics and consists of the following elements or component parts: A device consisting of pulse oscillator, high frequency oscillator and modulator, to generate voltage trains, each containing one or more electric oscillations at supersonic frequency; a piezoelectric crystal to which the electric oscillations are applied and which crystal is acoustically coupled to the workpiece to be inspected via a medium (a film of oil or wax) having good conductive properties for ultrasonic vibrations; an amplifier, electrically connected to the crystal and capable of amplifying the weak electric oscillations produced in the crystal, by echo waves reflected from discontinuities within the workpiece; a linear sweep circuit synchronized with the genera-

tion of the voltage trains applied to the crystal and a cathode ray tube whose beam is deflected by the linear sweep.

These components are all defined in the specifications of the patent.

The function of this apparatus as disclosed by the patent is for the inspection, exploration, and measurement of a solid part by means of supersonic vibration waves.

The operation of the apparatus consisting of these components may be explained in non-technical language as follows: An electric current is introduced into the pulse oscillator which causes it to emit rhythmic pulsations of current. Simultaneously an electric current is transmitted to a high frequency oscillator which is converted into a continuous high frequency current.

The output of these two components is conducted to the modulator which serves as an electronic valve. The rhythmic pulsations from the pulse oscillator open the valve for the duration of each pulse. While open, the high frequency current passes through to the sending crystal. From the modulator then comes a rhythmic series of high frequency pulses, referred to as wave trains, which are transmitted to the sending crystal, causing it to produce mechanical vibrations at the same frequency as the current sent to it.

The high frequency mechanical vibrations or sound waves from the vibrating crystal are transmitted through a medium of oil or wax on the crystal into the solid part or workpiece being inspected.

When the sound waves strike a flaw or the end of the workpiece, referred to as a discontinuity, they are reflected as an echo back through the workpiece to the point at or near which they entered. This echo is picked up by the receiving crystal, which may be the same one as the send-

ing crystal or a different one, and the vibrations from the echo cause the receiving crystal to generate a small electric current. The current flowing from the receiving crystal is then increased in strength by an amplifier and conducted to a cathode ray oscilloscope, which is synchronized with the pulse of the oscillator, through a linear-sweep circuit.

When an electrical wave train is sent to the sending crystal, the linear-sweep circuit starts a spot of light moving horizontally across the fluorescent screen of the cathode ray tube at a constant speed.

The initial sound wave train deflects the spot. This deflection is referred to as a "pip." The spot then continues along its original path at the same speed, until the amplified current from the receiving crystal again deflects it, indicating that an echo has returned from a discontinuity in the workpiece. If the discontinuity is a flaw, the pip will occur closer to the original pip on the oscilloscope screen than that caused by a reflection from the end of the workpiece. The distance between the deflections created by the original pulse and the echo indicate the distance the sound waves have traveled, because this distance is correlated to the time it takes the sound waves to go out from the sending crystal and be reflected back to the receiving crystal.

The same process occurs when the discontinuity is the end of the workpiece, but this deflection will be farther from the original pip due to the increased time of travel.

Thus a graphic illustration of the initial sound waves, those reflected from the opposite end of the workpiece and those reflected from any intervening flaws, is made to appear on the oscilloscope screen. The whole process takes place with great rapidity, perhaps 100 times per second, and because of persistence of vision, the light spot on the

oscilloscope screen appears as a stationary, continuous line.

Two basic questions challenging the validity of patent No. 1, which were argued by counsel for the defendants, in the trial court and determined by the trial judge, are here presented for review. These questions are 1, Floyd A. Firestone, the inventor, made a misrepresentation to the patent office in securing the allowance of the patent and 2, the claims in suit 2, 3, 4, 10 and 11 are lacking in invention over prior art and were anticipated by such prior art.

The defendants now raise, for the first time, questions concerning the sufficiency with which the structure or combination is defined in the claims in suit. This Court is not bound to consider such questions. "It is the usual rule that we will not give consideration to issues not raised below." *Doll v. Glenn,* 231 F. 2d 186, 190, C. A. 6; *Cold Metal Process Co. et al. v. McLouth Steel Corporation,* 170 F. 2d 369, 380, C. A. 6; *Helvering v. Wood,* 309 U. S. 344, 349.

In *Hormel v. Helvering,* 312 U. S. 552, 558, the court said: "These decisions and others like them, while recognizing the desirability and existence of a general practice under which appellate courts confine themselves to the issues raised below, nevertheless do not lost sight of the fact that such appellate practice should not be applied where the obvious result would be a plain miscarriage of justice."

No such result would obtain here. The validity of patent No. 1 can be determined by a consideration of the two basic questions mentioned above.

Further, we are of the opinion that the claims in suit, so far as sufficiency of statement is concerned, meet the requirements of the statute. Section 112 of the patent act, which became effective January 1, 1953, provides, in part,

"An element in a claim for combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof."

It was further provided that the Act should apply to unexpired patents granted before the effective date of the Act.

This statute is in a sense a codification of an existing practice, but, as stated in the commentary on the Act, "It is unquestionable that some measure of greater liberality in the use of functional expressions in combination claims is authorized than had been permitted by some court decisions, and that decisions such as that in *Halliburton Oil Well Cementing Co. v. Walker,* 67 S. Ct. 6, 329 U. S. 1, 91 L. Ed. 3 (1946) are modified or rendered obsolete, but the exact limits of the enlargement remain to be determined." p. 25 Title 35 U. S. C. A., Patents, Sections 1 to 110.

We consider that the elements of the combination constituting the claimed invention are sufficiently defined and described in the specifications to support the claims in suit as stated.

One of the claims of invalidity is based on a charge that Mr. Firestone, the patentor, made misrepresentations of fact to the patent office, which induced the allowance of the patent. Mr. Firestone stated in one of his responses to the patent office, after a rejection, that his device would measure distances as small as 1/16 inch. The defendants say that he purposely withheld the fact that he had been unable to measure a distance of 10 inches three months before the application was filed.

This defense was not made in the answers filed by the defendants. It was asserted after the trial judge, while

studying the case, called attention of the parties by letter to certain testimony which was not discussed in their briefs.

The trial judge ruled against the defendants on this issue. It is claimed by the defendants that in arriving at this conclusion the judge relied on an entry in a notebook of Mr. Firestone, which was not properly admissible. (px 54,883a.) The page in question of the notebook had been admitted for another entry on another point.

This was a notebook which Mr. Firestone began using about August 1940. It was in his handwriting and contained entries of his work dated currently with the time of the entry. It was introduced for the entry dated January 10. 1941. This page also carried an entry dated November 2, 1940. It was this entry to which the trial judge made reference and which is objected to by the defense. The Court held that there was sufficient proof to allow its admission for the 1941 entry. If it were properly admitted for the one entry we see no reason why it cannot be considered for another similar entry of a different date. We think this exhibit was properly introduced under Section 1732, Title 28 U. S. C.

In *National Latex Products Company v. The Sun Rubber Co.*, 274 F. 2d 224, C. A. 6, cert. denied 362 U. S. 989, reports of the inventor were in evidence but there is no discussion of their admissibility. In *Erie R. Co. v. Lade*, 209 F. 2d 948, 951, C. A. 6, the Court said: "Rule 43(a), Federal Rules of Civil Procedure, 28 U. S. C., gives the court much latitude in determining admissibility of evidence and doubts must be resolved in favor of admissibility."

After reviewing all of the evidence on the subject of misrepresentation, we conclude that the facts as found by the trial judge are not clearly erroneous. The facts amply

support his conclusions: "I hold, therefore, that the representation of Dr. Firestone as to the 1/16 inch measurement was not fraudulently made and that under the circumstances such representation was not a material departure from the true measuring capability of patent No. 1." (171 F. Supp. 901, 908.) And at p. 910, 171 F. Supp.: "A fair analysis of the record leads to the conclusion that defendants have failed to sustain their claims of misrepresentation by that degree of clear and satisfactory proof required by law. I find that the presumption of the validity of patent No. 2,280,226 has not been impaired by misrepresentations to the patent office."

The statute gives a patent a presumption of validity. (Section 282 of Title 35 U. S. C.) This presumption is weakened if there is applicable prior art not considered by the patent office. *France Mfg. Co. v. Jefferson Electric Co.*, 106 F. 2d 605, C. A. 6; *Wolverine Fabricating and Mfg. Co., Inc. v. Detroit Gasket and Mfg. Co.*, 148 F. 2d 399, C. A. 6; *Modern Products Supply Co. v. Drachenberg*, 152 F. 2d 203, C. A. 6; *Cold Metal Process Company v. Republic Steel Corp.*, 233 F. 2d 828, C. A. 6; *Gibson-Stewart Company, Inc. v. Wm. Bros. Boiler and Manufacturing Company*, 264 F. 2d 776, C. A. 6; *Murray Company of Texas, Inc. v. Continental Gin Company*, 264 F. 2d 65, C. A. 5.

Patent No. 1 now before us, if valid, must rest on the principle that it is a combination of old elements which accomplish a new and useful result. It is elementary that the elements requisite to the validity of a patent are novelty, utility and invention.

Judge McAllister, speaking for the Court in *Allied Wheel Products v. Rude*, 206 F. 2d 752, 760, C. A. 6, said: "Anticipation belongs in the field of novelty. To anticipate an invention is to negative novelty; but even though a patent is not anticipated, and is concededly novel, it may

lack invention. In order to anticipate an invention, it is necessary that all of the elements of the invention or their equivalents be found in one single description or structure, where they do substantially the same work in substantially the same way."

In *Ohmer Fare Register Co. v. Ohmer,* 238 F. 182, 186, C. A. 6, Judge Knappen, speaking for the Court, said: "We are cited to no reference in the prior art fully anticipating the patent in suit. But we are considering the scope of invention, not anticipation; and in such inquiry the question is one of fact, taking into account the entire prior art, whether the advance made in the given case amounts to invention or only mechanical skill. . . . All elements of the prior art have a bearing upon the question of invention; it being unnecessary to a finding of lack of invention that every element be found in one embodiment."

"A reference, in order to be effective to disprove the novelty of an alleged invention, must relate to the same art as the questioned invention or to an analogous or closely related art." *Allied Wheel Products v. Rude,* 206 F. 2d 752, 755, C. A. 6. "With regard to analogous art, it is the rule that, though an inventor is conclusively presumed to know the prior art in his own and clearly allied lines of endeavor, he is not bound by what has been done in remote or non-analogous arts." *Allied Wheel Products v. Rude,* supra, 755. See also: *Ottinger v. Ferro Stamping & Mfg. Co.,* 59 F. 2d 640, C. A. 6; *Alemite Mfg. Corp. v. Rogers Products Co., Inc.,* 42 F. 2d 648, C. A. 3.

In *A. J. Deer Co., Inc. v. United States Slicing Machine Co.,* 21 F. 2d 812, 813, C. A. 7, the court said: "We are of opinion that whether arts or uses are analogous depends upon the similarity of their elements and purposes. If the elements and purposes in one art are related and similar to those in another art, and because and by reason

of that relation and similarity make an appeal to the mind of a person having mechanical skill and knowledge of the purposes of the other art, then we are of the opinion that such arts must be said to be analogous, and, if the converse is true, they are non-analogous arts." See also *Allied Wheel Products v. Rude*, supra; *Copeman Laboratories Co. v. General Plastics Corp.*, 149 F. 2d 962, C. A. 7; *B and M Corporation v. Koolvent Aluminum Awning Corporation of Indiana*, 257 F. 2d 264, C. A. 7. Another test is stated in *General Metals Powder Co. v. S. K. Wellman Co.*, 157 F. 2d 505, 510, C. A. 6: "A reasonable test is, whether the art from which the citations against the patent were drawn, was so remote that students of the questioned art would not naturally have looked there for help."

Findings of fact of the trial court in a patent case cannot be set aside unless clearly erroneous. Rule 52, F. R. C. P.; *General Metals Powder Co. v. S. K. Wellman Co.*, supra; *Gibson-Stewart Company, Inc. v. Wm. Bros Boiler and Manufacturing Company*, supra; *Cold Metal Process Company v. Republic Steel Corp.*, supra.

With these principles in mind we now turn to the references to see if from the combined disclosures of all of them a person skilled in the art might readily have designed the device alleged by the plaintiffs to constitute invention.

Mr. Fishleigh called as an expert by the defendants made a comparison of the non-cited references with the patent in suit. We are unable to find from his testimony or any testimony in the record that one skilled in analogous art could have designed the device which is the subject of patent No. 1 from the combined disclosures of all the prior art to which reference is made. We find, therefore, that the patent is not invalid for lack of invention.

This view is strengthened by a letter (px 61, 899a) from Dr. W. D. Coolidge to Dr. Firestone, dated February 10, 1943. Dr. Coolidge was consultant in x-ray matters for General Electric Company and formerly a Vice-president and Director of Research of that company. He said, in part: "Stimulated by a Russian publication in this field several years ago, we had a try at this method but without getting results of practical value."

The invention of this patent is not anticipated by any of the prior art references, either those cited in the file wrapper or those not cited. Not one of these references contains all of the elements of the invention or its equivalents. *Allied Wheel Products v. Rude*, supra.

The trial judge found patent No. 1 valid (171 F. Supp. 901, 910-914) and our findings support that conclusion. His findings are certainly not clearly erroneous.

The defendants challenge the validity of claims numbered 7, 16, 19, 20, 25, 26, 29 and 32 of patent No. 2. Claim No. 7 was held invalid by the trial judge and is the subject of appeal in case number 13891.

Claims numbered 16, 25 and 29 involve the use of a heterodyne amplifier. It is charged that this amplifier is old and lacks invention over patent No. 1 and that it is anticipated by prior patents, Harrison No. 2,433,361 (dx K-12, 1069a) and Wiseman No. 2,491,540 (dx K-15, 1105a).

It is claimed that crystal damping which is described in claims 19 and 32 is old in the art and anticipated by the Sokolov 1935 Publication (dx K-36, 1199a), Round patent No. 1,732,029 (dx K-5, 1031a), Sawyer patent No. 2,105,010 (dx E-14, 969a) and British patent No. 473,636 (dx E-29, 987a).

Claims 20 and 26 are directed to the operation of the heterodyne amplifier and the damped crystal in combina-

tion. It is claimed that there is no new coaction between the crystal and the amplifier, that both elements are old and that the claims are anticipated by prior art as shown in exhibits JJ and KK.

It is known that crystal damping was in use before Dr. Firestone's adaptation of it in patent No. 2 (Fishleigh 325a) and he concedes that the heterodyne amplifier was old in the art before he used it in this patent. The gist of Dr. Firestone's alleged invention in patent No. 2, as evidenced by the claims in suit, can be simply stated in his own language:

"I might say that heterodyne amplifiers were used before my invention both having frequencies lower than the signal frequency and those having frequencies higher than the signal frequency, but no one recognized this property of the heterodyne amplifier that it would recover its sensitivity more quickly after receiving a shock. *So I have taught that if one combines a heterodyne amplifier with a damped crystal*, damped in the particular manner that I have shown, *one can find flaws closer to the surface than by omitting such elements.*" (Emphasis added.) (104a), and

At pages 546 and 547a: "I concede right off that there have been used before my invention heterodyne amplifiers having intermediate frequencies higher than the signal frequency. But they were always used for announced purposes which were different than my purpose, and none of them taught what I discovered, that a heterodyne amplifier with such elevated intermediate frequency will recover its sensitivity after the initial shock more rapidly than will a straight amplifier, and Wiseman is one example of such an amplifier. And if there has not been such teaching in the past literature, one does not know enough to choose such an amplifier in the design of his apparatus. I was the

first to announce that such a heterodyne amplifier will recover its sensitivity more rapidly than a straight amplifier."

* * * * *

"*The Claim 26 is based on Claim 25 and combines that particular kind of a heterodyne amplifier along with means for damping the free vibrations of said crystal.* So you can fail to find a flaw that is close to the surface either because the amplifier you used did not recover fast enough or because the crystal was not adequately damp, *and the combination of those two enables you to find flaws which would otherwise be undetectable.*" (Emphasis added.)

The trial judge found that patent No. 2 related to improvements of patent No. 1 in the following respects: 1. Damping of the transducer (crystal) (claims 19 and 32); 2. Amplification by use of a heterodyne amplifier (claims 16, 25 and 29); and 3. "The use of improved means for the application of a train of voltage oscillations to the sending crystal." (Claim 7 which was held invalid.)

Patent No. 2 was in the Patent Office for nearly four years (June 1942-April 1946) before it was allowed. The claims in suit, except No. 32, were rejected one or two times, primarily because the combination had been exhausted by the first patent. Before the claims were finally allowed, Dr. Firestone made oral argument to the patent examiner. This argument is not a part of the file wrapper record and we, therefore, do not know the nature of it or what effect it had in overcoming the objections of the patent office.

The utility of patent No. 2 lies in the claim of Dr. Firestone that he had invented a means of detecting flaws in metal closer to the surface—within one-half inch.

To substantiate his claim to patent No. 1, after it had been rejected by the patent office, Dr. Firestone wrote, on

January 16, 1941, to that office: "I teach how to determine the thickness of a piece of steel when it is even as thin as 1/16 inch and when the reflected wave train arrives 0.2 micro-seconds after the initial pulse." (913a.) It appears that this was a vital matter in allowing this patent.

On January 15, 1941, in a letter to Edwin D. Eaton, (px 53, 879-880a) he wrote: * * * "Our equipment has been speeded up to such a point that we can now measure the thickness of the parallel plate which you sent us 1/16 in. thick in which case the successive reflections arrive back at the sending point ½ micro-seconds apart. * * * This improved operation and high speed has been made possible by two improvements: first, the damping of the quartz crystal by the addition of a heavy layer of wax to its back side, and second, the construction of a new amplifier having very short time constants in all parts of its circuit."

In the early part of this opinion we sustained the trial court's finding that there was no misrepresentation by Dr. Firestone in claiming that he could measure the thickness of metal down to 1/16 of an inch.

The trial judge discussed at great length prior patents and whether they anticipated the alleged invention of patent No. 2. The more important question is whether or not there was invention over patent No. 1. Counsel for plaintiffs claim that a new and unobvious result was achieved by the patent. Was the result unobvious or was it mere refinement such as any one skilled in the art might develop from the disclosures of the first patent?

In *Riddell, Inc. v. Goldsmith Sons Co.*, 92 F. 2d 353, 356, C. A. 6, the Court said: "The most that can be said for the claim is that, being skilled in an art continually undergoing refinement, he probably produced a better football shoe, but the improvement, if any, was in degree only and was not invention. * * * We think the claim represents

nothing more than the exercise of mechanical skill such as might have been expected and falls within the recond rule announced in *Hug v. Lakewood Eng. Co.*, 7 F. 2d 98, 99 (C. C. A. 6)."

The rule referred to is: "In the other class he finds most of the elements already in combination, and adds one or two already well known, singly or as groups, as common expedients in similar situations, or he substitutes for one or two of those elements devices already familiar to mechanics for analogous use; here must be a very meritorious case of benefit to the art in order to justify a patent."

In *Dunbar v. Myers,* 94 U. S. 187, 199, the Court citing *Smith v. Nichols,* 88 U. S. 112, said: "Meritorious inventors are entitled to protection; but it is settled law that a mere carrying forward of an original patented conception, involving only change of form, proportions, or degree, or the substitution of equivalents, doing the same thing as the original invention by substantially the same means, is not such an invention as will sustain a patent, even though the changes of the kind may produce better results."

"A new application of an old device may not be patented if the 'result claimed as new is the same in character as the original result' (*Blake v. San Francisco,* 113 U. S. 679, 683), even though the new result had not before been contemplated." *Cuno Corp. v. Automatic Devices Corp.,* 314 U. S. 84, 91 and cases cited.

Here the claims in suit involve a heterodyne amplifier which is old, damping of the crystal which was previously known and a combination of the two which resulted in detecting flaws closer to the surface than could be done with patent No. 1. The parts performed the same function and operated in the same way as they did in the original patent. The difference in result was one of degree. It was only a refinement such as one skilled in the art could have

achieved from the disclosures of the first patent. This is not invention.

The questions arise from Dr. Firestone's own testimony whether he even achieved any new result. He says the minimum dimension that could be measured by the first patent was 1/16 of an inch.. In detection of flaws he said: "Approximately a half an inch, or inch, perhaps." (186a.)

In the specifications of patent No. 2, page 3, first column, line 22, it is stated: "With my device the first reflection from a flaw one-half of an inch away may be observed, and successive reflections obtained in a plate one-sixteenth of an inch thick."

And on page 4, at line 11, second column, he says, "unusually good results are obtained in detecting flaws in parts of the order of magnitude of an inch in linear dimension, or in detecting flaws which lie within one-half of an inch of the sending point and from which the reflected wave train is received four micro-seconds after the initial wave train is sent out."

For the reasons herein stated, we find that claims 16, 19, 20, 25, 26, 29 and 32 are invalid for lack of invention over patent No. 1. Arriving at this conclusion it is not necessary to discuss anticipation by prior art.

There are three claims in patent No. 3 and the defendants challenge the validity of all of them on the ground that they are anticipated by prior art.

This is an improvement patent and the gist of it, as shown by the evidence and the specifications of the patent, is well stated by appellees in their brief, at p. 51, "the interposition between the means of transmitting supersonic wave trains (the crystal) and the workpiece of means capable of conducting the wave trains and having a dimension in the direction of wave train travel such that the

reflected wave trains are received after the transmission of the wave trains is completed. It is the interposition of delay means of these *dimensions* which secures the advantage of the patent, namely the ability to detect flaws immediately below the surface of the workpiece."

The trial judge discussed the alleged applicable prior art devices and found that none of them anticipated the patent in suit. (171 F. Supp. 901, 919.) Having in mind the rule of anticipation as we have heretofore stated it, we conclude that the trial judge was correct in his findings and that they are not clearly erroneous.

Here as in the case of patent No. 2 the pertinent question is one of invention over patent No. 1. In his opinion, the trial judge said: "The title of patent, (Supersonic Inspection for flaws lying near the surface of a part,) indicates in large part its purposes." All three of these patents have for their purpose, supersonic inspection of a workpiece to detect flaws through the use of wave trains. It is claimed by Dr. Firestone that No. 2 was capable of detecting flaws closer to the surface than was possible with No. 1 and that with No. 3 still better results in this respect were achieved.

The principal distinguishing feature between patents No. 3 and No. 1 is that a piece of metal of undisclosed size and shape, or a tank of undisclosed size containing a liquid of undisclosed content is placed between the crystal and the workpiece in patent No. 3. The same combination of elements as is used in patent No. 1 is used in this patent with the addition of the interposed member. It operates by the same fundamental principle. It produces a refinement of the same result. The question then arises as to whether or not this is invention. Would the adding of this element between the crystal and the workpiece be obvious to one ordinarily skilled in the art?

Looking backward it seems that this advance was a logical step and that it was so simple that it would have been obvious to any artisan. That was the patent examiner's first impression and he rejected the claims for that reason.

In an application for reconsideration, it was pointed out that seven instruments made in accordance with patent No. 1 were sold to large industrial companies; that they were sold subject to the limitation that testing cannot be performed closer than ½ inch to the surface of the object under test. Although these machines were operated by highly skilled research men, under the direction of skilled research directors, the problem had not been solved before Dr. Firestone's disclosure in patent No. 3. These men had long been aware of the problem and were eager for a solution, as detecting flaws closer to the surface was a matter of great importance.

Upon these representations the examiner allowed the three claims of the patent now in suit. There is some evidence by Mr. Fishleigh (p. 390a-391a) that the advance was an obvious one to one skilled in the art. There is no evidence contradictory to the representations in the application for reconsideration. "It is often difficult to determine whether a given improvement is a mere mechanical advance, or the result of the exercise of the creative faculty amounting to a meritorious invention. The fact that the invention seems simple after it is made does not determine the question; if this were the rule many of the most beneficial patents would be stricken down. It may be safely said that if those skilled in the mechanical arts are working in a given field and have failed after repeated efforts to discover a certain new and useful improvement, that he who first makes the discovery has done more than make the obvious improvement which would suggest itself to a

mechanic skilled in the art, and is entitled to protection as an inventor." *Expanded Metal Co. v. Bradford,* 214 U. S. 366, 381. See also: *Dow Chemical Co. v. Halliburton Oil Well Cementing Co.,* 324 U. S. 320, 330; *Loom Company v. Higgins,* 105 U. S. 580, 591; *Cold Metal Process Company v. Republic Steel Corp.,* 233 F. 2d 828, 837, C. A. 6, cert. denied, 352 U. S. 891, rehearing denied, 352 U. S. 955; and *G. H. Packwood Mfg. Co. v. St. Louis Janitor Supply Co.,* 115 F. 2d 958, 964, C. A. 8.

We find that there is not sufficient evidence of lack of invention to overcome the presumption of validity. Accordingly, we conclude that all claims of patent No. 3 are valid.

Patent No. 4 is a method patent. The purpose of claim 2, which is in suit, is for the inspection of the interior of a solid part and the detection of flaws therein. This claim describes a method adapted to the use and operation of the device covered by patent No. 1 and serves the useful purpose of being able to inspect a larger area of the workpiece without moving it, and of detecting flaws not otherwise ascertainable. There is no change in the fundamental principle of detecting flaws, as taught by patent No. 1. It is particularly adaptable for the inspection of a piece that is attached to a piece of machinery or other object.

The method of operation is pretty well described by the language of the claim: "The method of inspecting the interior of a solid part, which consists in transmitting a supersonic wave through a liquid which is in contact with the solid part, varying the angle of incidence of the wave for scanning a cross-sectional area of the solid part, and detecting waves emerging from the solid part into said liquid with an angle of emergence equal to the aforementioned angle of incidence." Varying the angle of incidence

is accomplished by a device which permits the crystal to be tilted or slanted.

The defendants charge that claim 2 is invalid because it is anticipated by Gotz, a prior art reference disclosed in a German publication "Akustishe Zeitschrift" (dx K-42, 1229a), and because it lacks invention.

The trial judge made findings by which he distinguished between the disclosures of Gotz and claim 2 of the patent now before us. He found that there was no anticipation. We agree with his conclusions and find that they are not clearly erroneous.

We might say further that the Gotz reference discloses that the author was transmitting sound waves *through* his workpiece at an angle and measuring the *intensity* of the received sound, rather than measuring the *time interval* between the sending of a wave train and the reception of a wave train reflected from a flaw or discontinuity. There is a basic difference. "A foreign patent is to be measured as anticipatory, not by what might have been made out of it, but by what is clearly and definitely expressed in it. An American patent is not anticipated by a prior foreign patent, unless the latter exhibits the invention in such full, clear, and exact terms as to enable any person skilled in the art to practice it without the necessity of making experiments." (*Carson v. American Smelting & Refining Co.*, 4 F. 2d 463, 465, C. A. 9, cert. denied, 269 U. S. 555. See also: *Borg-Warner Corp. v. Mall Tool Co.*, 220 F. 2d 803, C. A. 7.)

We find claim 2 of patent 4 is not anticipated by Gotz.

The patent office allowed the patent after first rejecting it because of lack of invention over patent No. 1. The method described by the claim in suit is novel and useful and we think is properly classed as invention. The trial

judge so found and we cannot say that such finding is clearly erroneous. Neither can we find sufficient evidence of lack of invention to overcome the presumption of validity.

We find the claim in question to be valid.

We have been considering, under the first six questions of defendants' brief, the validity of the claims in suit of patents numbered 1, 2, 3 and 4. Questions eight and nine still further challenge the validity of patent No. 1.

It is charged that the trial judge was strongly influenced to find patent No. 1 valid by reason of a letter dated February 10, 1943 (px 61, 899a), of W. D. Coolidge, then Vice-president and Director of Research of General Electric Company, to Dr. Firestone. We have previously referred to that letter and quoted the second paragraph to which the objection was directed. The defendants claim that this letter is hearsay and not admissible.

Dr. Coolidge was Director of Research of General Electric at the time he wrote the letter and had two or three hundred men under him. He was eighty-three years old at the time his deposition was taken in 1957 and had been retired since 1944. He had no present recollection of the subject discussed in the letter but he identified it as having been written by him and was certain that it stated a fact as of the time it was written. The letter is simply a memorandum recording a situation as of fourteen years before. The case was being tried to the court and the trial judge has considerable discretion as to what evidence shall be admitted. The Federal Rules and practice favor admission of evidence rather than exclusion if the proffered evidence has any probative value at all. We think the letter was admissible for what it appeared to be and that the question was one of weight rather than admissibility.

We do not find that the trial judge attached undue weight to the letter. He did not find that it was determinative of the issue of validity of patent No. 1, nor do we. It was cumulative and after finding validity it added strength to the conclusion. The fact that others had not achieved a result or made a discovery is only a circumstance in determining invention.

The claim that the trial judge based his finding of validity of patent No. 1 on commercial success is without foundation. We do not find anything in the opinion that would indicate he made such a finding, nor have counsel for the defendants referred any such findings to us. Only in close cases where there is some doubt about invention will commercial success tip the scales in favor of validity. If invention is lacking in a device no amount of commercial success will validate a patent. *Jungersen v. Ostby and Barton Co.*, 335 U. S. 560, 567; *Goodyear Co. v. Ray-O-Vac Co.*, 321 U. S. 275, 279; *Great Atlantic and Pacific Tea Co. v. Supermarket Equipment Corp.*, 340 U. S. 147, 153.

The trial judge did not find that invention was such a close question that it was necessary to rely on commercial success to sustain validity.

The defendants charge that the trial judge refused to recognize the fundamental rule that a device does not infringe where it follows the prior art rather than the patent disclosures. It is obvious that there can be no infringement in this case unless the accused device, the Immerscope, follows the teachings of the claims in suit of patents numbered 1, 3 and 4.

The trial judge painstakingly compared all of the alleged prior art references with the claims in suit of the patents herein involved. He found there was no anticipation. We sustain him in his findings as to patents 1, 3 and

4. As already stated we find patent No. 2 invalid for lack of invention.

The pertinent question here is whether the Immerscope follows the teachings of plaintiffs' patents. If its source is not in any one or more of these patents, it matters not where else it may be.

An infringement said the court in *Westinghouse v. Boyden Power Brake Co.*, 170 U. S. 537, 569, quoting from *Burr v. Duryee*, 1 Wall. 531, 573, "is a copy of the thing described in the specification of the patentee, either without variation, or with such variations as are consistent with its being in substance the same thing. If the invention of the patentee be a machine, it will be infringed by a machine which incorporates in its structure and operation the substance of the invention; that is, by an arrangement of mechanism which performs the same service or produces the same effect in the same way, or substantially the same way . . . That two machines produce the same effect will not justify the assertion that they are substantially the same, or that the devices used are, therefore, mere equivalents for those of the other."

"Infringement of a combination patent occurs only through a combination comprising every one of its elements or a mechanical equivalent." *Guide v. Desperak*, 249 F. 2d 145, 147, C. A. 2. See also: *Rowell v. Lindsay*, 113 U. S. 97, 102; *Imhaeuser v. Burek*, 101 U. S. 647.

"It is well established that an improver cannot appropriate the basic patent of another and that the improver without a license is an infringer and may be sued as such." *Tempco Co. v. Apco Co.*, 275 U. S. 319, 328. See also: *Cochrane v. Deener*, 94 U. S. 780, 787; *Cantrell v. Wallick*, 117 U. S. 689, 694; *C and O Ry. Co. v. Kaltenbach et al.*, 95 F. 2d 801, 804, C. A. 4.

"If the infringing device performs the same function as the patented device, it is immaterial that it also performs some other function. It is still none the less an equivalent of the patented device, and an appropriation of the patented invention." *Comptograph Co. v. Mechanical Account Co.*, 145 F. 331, 338, C. A. 1. See also: *C and O. Ry. Co. v. Kaltenbach*, supra, and cases there cited.

As said by the trial judge, an accused device cannot escape infringement by merely adding features, if it otherwise adopts the basic features of the patent. *Holland v. American Steel Foundries*, 190 F. 2d 37, C. A. 7; cert. denied, 342 U. S. 859; *Aluminum Co. v. Thompson*, 122 F. 2d 796, C. A. 6; *Kelley-Koett v. McEuen*, 130 F. 2d 488, C. A. 6, cert. denied, 318 U. S. 762.

With these principles in mind, we proceed to analyze the Immerscope with reference to infringement of the Firestone patents.

The Immerscope consists of the following *essential* elements or component parts: A device consisting of a free running multivibrator, blocking oscillator and thyratron pulser, which serve to pulse the crystal; a piezoelectric quartz crystal to which the pulse is applied causing it to vibrate, and which is connected to the workpiece by immersing both in liquid, usually water, or putting a stream of water between them so that sound is conducted from crystal to workpiece; an amplifier-rectifier combination which serves to amplify small voltages and rectify individual oscillations received from the crystal, a linear sweep circuit synchronized with the multivibrator of the pulsing apparatus consisting of a bootstrap sweep generator and horizontal amplifier, which causes a trace to sweep horizontally across the cathode ray tube at a constant speed, as each pulse is emitted; and a cathode ray tube or oscilloscope.

In addition to the above essential elements the Immerscope has apparatus for delaying the synchronization to allow the operator to select what he views on the oscilloscope; an audio or visual flaw alarm, a sensitivity time control to amplify later returning weaker echoes; and a marking system that produces pips at regular time intervals on the oscilloscope screen adjacent to echo pips for a time measuring yardstick.

The Immerscope's crystal pulsing apparatus sends a pulse of electricity to the crystal and causes it to vibrate in the same manner as the wave train generator of patent No. 1. Although the component parts of the wave train generator and the pulsing apparatus have different names, their total effect is the same.

Both devices use a piezoelectric quartz crystal that is caused to vibrate when it receives a pulse of electricity. These crystals are substantially identical. The Immerscope uses one such crystal for both a sender and receiver while the device of patent No. 1 may use one or two.

Firestone uses a thin film of oil or wax between his crystal and workpiece to conduct sound waves from one to the other. The Immerscope uses a column of sound conducting liquid, usually water, between them, obtained by immersing both the crystal and workpiece in liquid or running a stream between them.

The Immerscope has an amplifier-rectifier combination which amplifies weak electrical currents received from the crystal and rectifies individual oscillations so that only their voltage envelope is shown on the oscilloscope screen. Firestone's patented device calls for an amplifier and a rectifier to be used for the same purposes, although his rectifier is optional.

Both devices have a linear sweep circuit synchronized with the emission of pulses or wave trains that cause a

trace to travel at a constant speed across the oscilloscope screen.

The Immerscope and the patented device utilize a cathode ray tube or an oscilloscope as an indicating device.

Defendants urge that the Immerscope can be distinguished from Firestone patent No. 1 by the type of testing done by each. It is claimed that the Firestone patent is limited to contact testing whereas the Immerscope is used in immersion testing and that difference is sufficient to avoid infringement. The District Judge discussed this distinction at length and found that at most the Immerscope was an improvement over the Firestone patent and that there was infringement. We are in accord with his findings and conclude that they are not clearly erroneous.

Upon a careful analysis of the elements and functioning of the Immerscope and Firestone patent No. 1, we conclude that the Immerscope operates in substantially the same way and uses substantially the same means as that which forms the substance of the Firestone invention.

Accordingly, we sustain the District Court's finding that claims numbered 2, 3, 4, 10 and 11 of patent No. 1 are infringed.

No. 2 patent is invalid for lack of invention over the disclosures of No. 1. Its alleged improvements over patent No. 1 were obvious to one skilled in the art. Therefore, No. 2 adds nothing to the disclosures of patent No. 1.

There seems to be little question that the Immerscope infringes all of the claims of patent No. 3. The defendants virtually admit this in their argument on the validity of the claims of patent No. 3 (Defendants' brief p. 40). We are in accord with the findings and conclusions of the trial judge on this question. The claims of patent No. 3 are infringed by the Immerscope.

The evidence supports the reasoning and conclusions of the trial judge on the question of infringement of claim 2 of patent No. 4. His findings are not clearly erroneous and for the reasons stated by him we conclude that the Immerscope infringes claim 2 of patent No. 4.

This case presents substantial questions on the validity of the patents in suit. There is very little question about the infringement of the accused device. Electro Circuits, Inc. sought a license from Sperry in order that it might manufacture its Wide Band Converter. This request for a license was refused but Sperry entered into a contract with Electro Circuits whereby it could use the Sperry patents in its Wide Band Converter under certain conditions or restrictions. These conditions or restrictions will be discussed later. Electro Circuits continued under the belief that it was necessary to have consent to use the disclosures of the Firestone patents until it was advised by counsel that they were invalid. Upon receiving this advice it began making the Immerscope, the accused device without restriction.

By some process of reasoning, the defendants now argue that the overall system of Sperry in the use of its foreign patents somehow relate to the use of its domestic patents, which results in such a misuse of those patents that they cannot be enforced. No pertinent authorities are cited in support of this alleged principle. Neither is there any reference to it in the Statement of Facts in the defendants' brief.

Counsel for the defendants approach this phase of the case in their brief as though this Court was hearing and determining the questions raised de novo. We address our attention only to alleged errors of the trial court.

Foreign patents grant no monopolies in the United States, nor do United States patents grant any monopolies in foreign countries. A patent is granted by a sovereign

power and its rights, privileges and obligations begin and end with the country that issues it.

The trial judge found that there was no misuse of the patents in suit as a result of Sperry's licensing and cross-licensing of foreign patents. There is ample evidence to support this finding and it is not clearly erroneous. We agree with the finding and the law as applied to it by the trial judge.

Another claim of the defendants is that Sperry imposed a "tying" agreement upon Electro Circuits, and that this agreement is illegal and constitutes a misuse of the Sperry patents and it is a violation of the anti-trust laws. In this connection, the trial court made findings, as follows: "Electro Circuits was organized in California in 1951. It commenced active operations in that state in July 1951. Its first development was a weld inspection apparatus which was followed by the development of a Wide Band Converter and the Immerscope. These devices operate on the principle of the pulse echo method of ultrasonic testing. At the time of its first development Electro Circuits attempted to secure a license under the Sperry patents in return for its agreement to purchase from Sperry unpatented subassemblies of the latter's patented devices. Sperry rejected this proposal. When Electro Circuits was ready to market its Wide Band Converter, Richards, the president of that company, had a conference with the officials of Sperry with a view of securing an agreement that would permit Electro Circuits to manufacture and sell its Wide Band Converter without being sued for infringement . . . It was agreed between the parties, however, that Sperry would forbear instituting suit for infringement provided Electro Circuits sold its Wide Band Converter for use only in conjunction with Sperry's Reflectoscopes. The Wide Band Converter was designed so that it could be 'plugged in' to a Reflectoscope. Under this arrangement of joint use,

only the display portion of the cathode ray oscilloscope of Sperry's instrument was used. All other functions of the dual apparatus were performed by the Wide Band Converter. The agreement remained in effect for about 9 months, during which time Electro Circuits sold 8 Wide Band Converters to owners of Reflectoscopes and one Wide Band Converter to a customer who agreed to its use with a Reflectoscope to be purchased from Sperry."

This agreement does not provide for the sale of any article covered by the patents in suit. Obviously then it does not provide that some other article either patented or unpatented must be purchased in order to get an article covered by the patents in suit. The agreement permits Electro Circuits to market its Wide Band Converter without being subjected to a suit for infringement. At this point, the parties to the agreement assumed that the Wide Band Converter infringed the Sperry patents. This being so, Sperry could have prevented the sale of the converters or could have sued the users for infringement. Sperry was legally entitled to be free of competition in the use of its patents. Under the agreement, no trade was unlawfully restrained. An article was thus introduced into commerce that might otherwise have been withheld from the markets.

There is no tying agreement here as that term has been defined by the courts.

"For our purposes a tying arrangement may be defined as an agreement by a party to sell one product, but only on the condition that the buyer also purchases a different (or tied) product, or at least agrees that he will not purchase that product from any other supplier. Where such conditions are successfully exacted competition on the merits with respect to the tied product is inevitably curbed." *Northern Pac. R. Co. v. United States,* 356 U. S. 1, 5.

The evil of tying agreements is the suppressing of competition. "Tying agreements by which the sale of one commodity is conditioned on the purchase of another have been repeatedly condemned under the antitrust laws, since they serve no purpose beyond the suppression of competition." *Black v. Magnolia Liquor Co.*, 355 U. S. 24, 25.

To be free of competition on the article patented is the very basis of the grant of a patent. In the agreement Sperry did no more than protect its fundamental and basic rights under its patents.

We conclude that the trial judge was not in error in finding that the agreement in question was neither a violation of the anti-trust laws nor a misuse of the patents in suit.

Another question presented by the defendants in their briefs concerns an alleged imposition by Sperry or restrictions on the use of its patented Reflectoscope after sale or lease. The argument addressed to this question relates to an Angle Beam Search Unit not covered by any of the patents in suit.

The evidence discloses that the Reflectoscope which is the subject of the patents in suit was sold outright without restriction. Approximately eleven hundred were so sold.

The Angle Beam Search Unit might be termed an accessory to the Reflectoscope, a device that might be used with it but not essential to the use of the Reflectoscope.

Until January 16, 1956 this device was leased and not sold. A condition of the lease was as follows: "1. Use. To be used for inspecting lessee's manufactured products, materials used therein, production equipment, and in the case of railroads, for the inspection of its rolling stock and components pertaining thereto." (dx RRRR, 140a.) As of the above date all units were sold outright without restrictions.

There is no reference to any evidence, nor do we find any that would indicate that the patents in suit were in any way used to enforce restrictions on the use of the Angle Beam Search Units.

The patents in suit, therefore, were not misused or used in violation of the anti-trust laws. It is unnecessary to pursue further the restrictive condition of the lease of the Angle Beam Units. We are in accord with the conclusion reached by the trial judge.

We find no merit in the claim of defendants that the patents in suit were misused by placing on the patent tag of Reflectoscopes other patent numbers in addition to those in suit, under the words "Manufactured under one or more of the following patents."

The evidence does not show that the defendants or anyone else was injured by this listing of patents. It does not disclose that Sperry acquired any monopoly beyond what it was entitled to have under its patents. The patents in suit were properly listed on the patent tag.

The findings and conclusions of the trial judge on this question were correct.

The trial judge found that the defendants failed to sustain their claims of misuse and violation of the anti-trust laws. We have sustained him in these findings. It follows therefore that he was correct in dismissing the counter claim of the deefndant Electro Circuits, Inc.

The judgment of the District Court will be affirmed, except as to its judgment finding claims numbered 16, 19, 20, 25, 26, 29 and 32 of patent No. 2 valid and infringed.

The judgment of the District Court as to claims numbered 16, 19, 20, 25, 26, 29 and 32 of patent No. 2 is reversed. The case is remanded to the District Court with instructions to enter a judgment on the above numbered claims of patent No. 2 in accordance with this opinion.